

Patent Claims

1. Device for controlling a thick matter pump with two conveyor cylinders (50, 50') communicating via two end openings (52) in a material supply container (54), operated in counter stroke by a hydraulic reversible pump (6) via hydraulic drive cylinders (5, 5') control by said pump, with a hydraulically actuated pipe switch (56) provided within the material supply container (54), on its inlet side alternately connectable to one of the openings (52) of the conveyor cylinders (50, 50'), freeing the respective other opening, and on the outlet side connected with a conveyor conduit (58), wherein the drive cylinders (5, 5') are hydraulically connected with a connector of the reversible pump (6) via respectively one hydraulic line (11, 11'), and on their other end are connected to each other via an oscillating oil line (12), and further comprising a for reversing the reversible pump (6) after the conclusion of each piston stroke, thereby characterized, that the pump-side hydraulic connections of the drive cylinder and the hydraulically actuated pipe switch are provided in parallel connected branches of one of the reversible pump supplied hydraulic circuits, that the pipe switch includes a position indicator (80) sensing the pipe switch pivot position, that at least two cylinder switch sensors are provided spaced apart from each other on the drive cylinders, sensing the pistons of the drive cylinders as they pass by, and/or the pressure sensor is provided sensitive to the pressure sequence at the high pressure output of the reversible pump, and that the computer supported reversing device includes a control program responsive on the one hand to the output signal of

the position provider and on the other hand to the output signal of the cylinder switch sensors and/or the pressure sensor, for a program-controlled activation of a control element for adjusting the flow-through amount and/or direction of the reversible pump, as well as a reversing element provided in the hydraulic branch of the pipe switch.

2. Device according to Claim 1, thereby characterized, that the position indicator or encoder of the pipe switch is an angle transmitter.
3. Device according to Claim 1 or 2, thereby characterized, that the control element is a diagonal disk of the reversible pump.
4. Device according to Claim 3, thereby characterized, that the diagonal disk is adjustable hydraulically or electromechanically.
5. Device according to one of Claims 1 through 4, thereby characterized, that the reversing element is an electromagnetic or mechanically controllable directional valve.
6. Device for controlling a thick matter pump with two conveyor cylinders (50, 50') communicating via two end openings (52) in a material supply container (54), operated in counter stroke by a hydraulic reversible pump (6) via hydraulic drive cylinders (5, 5') control by said pump, with a hydraulically actuated pipe switch (56) provided within the material supply container (54), on its inlet side

alternatingly connectable to one of the openings (52) of the conveyor cylinders (50, 50'), freeing the respective other opening, and on the outlet side connected with a conveyor conduit (58), wherein the drive cylinders (5, 5') are hydraulically connected with a connector of the reversible pump (6) via respectively one hydraulic line (11, 11'), and on their other end are connected to each other via an oscillating oil line (12), and further comprising a for reversing the reversible pump (6) after the conclusion of each piston stroke, thereby characterized, that during the reversing process the pivot position of the pipe switch is measured, that during the conveyor process the position of the piston in the drive cylinders is monitored and in a terminal segment of each piston stroke the piston speed is slowed down by reducing the conveyance amount supplied by the reversible pump while the piston is conveyed to its end position, that in the case of an impacting piston the pressure supply to the actuating element of the pipe switch is reversed and the conveyance amount supplied by the reversible pump in an elevating phase is increased without direction change, until the pipe switch has reached a defined intermediate position on its pivot path, that subsequently the conveyance amount supplied by the reversible pump is returned until the pipe switch has reached an end position, and that the flow-through direction of the reversible pump is reversed and the pressure supply to the pipe switch is interrupted via a reversing element or is maintained by reversing.

7. Process according to Claim 6, thereby characterized, that in the subsequent flow-through reversal of the reversible

pump a hydraulic reversing element connected with the pipe switch is reversed or blocked.

8. Process according to Claim 6 or 7, thereby characterized, that the reversible pump in the elevation phase during the reversing process is for a short time controlled to a maximal conveyance amount.